

2/2 023

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0114510

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 42 AURORAE WERE OBSERVED VISUALLY AND SPECTROGRAPHICALLY IN THE PERIOD FROM 1957 TO 1966. THE PAPER GIVES THE DESCRIPTION OF VISUAL OBSERVATIONS AND INCLUDES TABLES OF ABSOLUTE INTENSITIES OF EMISSIONS IN THE REGION OF SPECTRUM FROM 3000 TO 11000 ANGSTROM. MOST OF THE OBSERVED AURORAE WERE TYPICAL LOW LATITUDE ONES HAVING ATOMIC SPECTRA AND PREDOMINANT EMISSION INTENSITY OF 6300 ANGSTROM.

UNCLASSIFIED

USSR

UDC 547.419.1

YURCHENKO, P. I., ZHMUROVA, I. N., SHPARTUN, L. N., and KIRSANOV, A. V.,
Institute of Organic Chemistry, Academy of Sciences, Ukraine in SSR

"The Auxochromic Effect of the Triphenylphosphinomethylene Group"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2354-2359

Abstract: The wave length of maximum absorption -- in the range of 400-600 nanometers -- was measured for azobenzenes of the general formula 4,4'-YC₆H₄N

---NC₆H₄X in acetonitrile benzene and heptane. Y groups generally had the form of (CH₃)₂N and various triphenylphosphine groups. The X groups were generally hydrogen or organic acids. The synthesis is given for several of these compounds not previously reported in the literature. For the Y group (C₆H₅)₃P ---N the wave length of maximum absorption was slightly

higher than or equal to compounds containing the Y group (CH₃)₂N; however, λ_{max} for both of these groups is significantly less than for the (C₆H₅)₃P

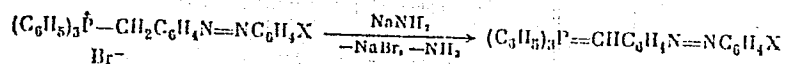
---CH group. The wave length of maximum absorption was also determined for a series of azostilbenes of the form YC₆H₄CH=CHC₆H₄N ---NC₆H₄X.

1/2

USSR

YURCHENKO, P. I., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2354-2359

These compounds can be prepared from the corresponding azobenzene as follows:



The λ_{max} for the azostilbenes is in general about 20 nanometers longer than the λ_{max} for the corresponding azobenzene. Preparative procedures and physical data are given.

2/2

USSR

UDC 547.588.1

ZHMUROVA, I. N., YURCHENKO, V. G., and YURCHENKO, R. I., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Reactions of the Substituents of Triarylphosphazobenzenes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2190-2194

Abstract: Absorption maxima in the electronic spectra of 1-phenyl-3-methyl-4-nR-benzylidenepyrazolenes-5 are directly related to the reaction constants of the electron-donating substituents R. Reaction constants were calculated for several electron donating substituents of the triarylphosphazo group. The transmission factor of the grouping $-C_6H_4P=N-$ in an excited state was determined.

1/1

USSR

UDC 546.185

YURCHENKO, R. I., and ZHMUROVA, I. N., Institute of Organic Chemistry,
Academy of Sciences Ukrainian SSR

"Influence of the Dimethylamino Group on the Auxochromic Effect of the
Phosphazo Group"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2635-2639

Abstract: The dimethylamino group attached directly to the phosphorus atom affects the reactivity of the phosphazo group according to its electron donor effect (σ_d). Its effect on the auxochromic shift of the phosphazo group is much weaker. This could be explained by unfavorable overlap of the free electron pair of the nitrogen atom with vacant d orbitals of the phosphorus.

1/1

- 46 -

USSR

UDC 541.67 + 547.558.1

PEN'KOVSKIY, V. V., YEGOROV, Yu. P., YURCHENKO, R. I., and MARTYNYUK, A. P.,
Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Electron Transfer From Phosphazoarenes to Acceptor Molecules"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2639-2642

Abstract: In the reactions of phosphazoarenes with tetracyanoethylene and chloranil an electron transfer takes place from the phosphazoarene molecule to the electron accepting one. The stable anion radicals formed have been observed by means of EPR. The concentration of paramagnetic centers in the systems studied increases with growing alkalinity of the phosphazo compounds.

1/1

USSR

UDC 547.558.1

ZHMUROVA, I. N., YURCHENKO, R. I., and MARTYNYUK, A. P., Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"The Effect of Substituents at the Phosphorus Atom on the Auxochromic Activity of the Phosphazo Group. III"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 1040-1043

Abstract: The group $(C_6H_5)_2[(C_6H_5)_3P=N]P=N$ is a stronger auxochromic agent than $(C_6H_5)_2[(CH_3)_2N]P=N$ or $(C_6H_5)_3P=N$. The effect of the dimethylamino group on the electron-donating properties of the P=N bonds is diminished in comparison with its electron donating effect (σ^+). The increase in the auxochromic activity due to the substitution of one phenyl group by a triphenylphosphazo group is due evidently to the specific structure of the auxochrom $(C_6H_5)_2[(C_6H_5)_3P=N']_2=N'$. Two interconverted phosphazo groups contain the bond system P-N-P within which a uniform distribution of electron density is possible.

1/1

USSR

UDC 546.185

ZHEMUROVA, I. N., YURCHENKO, R. I., YURCHENKO, V. G., TUKHAR', A. A., and
KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences Ukraine SSR

"Electrophilic Constants (σ^+) of Phosphazo Groups"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 779-785

Abstract: Correlation equations between ν_{\max} of para-disubstituted benzenes XC_6H_4Y -- where X is a fluctuating donor and Y is a stable acceptor -- and the electrophilic constants of the X group may be used to calculate the σ^+ of new electron-donor groups. This linear relationship between ν_{\max} and σ^+ was determined for benzaldehydes, acetophenones, nitrobenzenes, azobenzenes, and nitroazobenzenes in ethanol, acetonitrile, heptane, hexane, and isooctane. The σ^+ values of the phosphazo group were determined from these. Data on both ν_{\max} and σ^+ are given in four tables and a graph. The change in the electronic configurations of groups in the phosphorus atom had little influence on the σ^+ .

.1/1

USSR

UDC 547.419.1

ZHMUROVA, I. N., YURCHENKO, R. I., KUKHAR', V. P., ZOLOTYAREVA, L. A., and
KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences, Ukrainian
SSR

"Protonation of Triphenylphosphazobenzene. II. Effect of Substituents on
the Position of Tautomeric Equilibrium"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1954-1959

Abstract: Tautomeric equilibrium in the solutions of 4-triphenylphosphazobenzene salts depends on the concentration of acid as well as on the electronic nature of the substituents at 4'-position. The differences in absorption maxima in neutral and acid media and the basicity constants of 4-triphenylphosphazobenzene can be correlated with the O^- constants of 4'-substituents.

1/1

USSR

UDC 547.556:547.561+546.185

KUKHAR', V. P., ZHMUROVA, I. N., and YURCHENKO, R. I., Institute of Organic Chemistry, Academy of Sciences of the Ukrainian SSR

"Hammett Constants of the Triphenylphosphazo Group"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 279-281

Abstract: The experimental values of pK_a for p-(m'- and p'-triphenylphosphazophenyl)azophenols are used as a basis for calculating the values of the σ -constants of meta- and para- triphenylphosphazo groups: σ_m -0.33, σ_p -0.77. The value of the constant for the para-position is smaller than that of the dimethylamino group (-0.83), while the figure for the meta-position is somewhat larger than for the dimethylamino group (-0.211). A similar pattern is observed when σ^0 values are compared for these groups in the two positions.

1/1

USSR

UDC 547.558.1+546.185

ZHMUROVA, I. N., YURCHENKO, R. I., KUKHAR', V. P., PETRASHENKO, A. A., and KIRSANOV, A. V., Institute of Organic Chemistry, Acad. Sc., Ukrainian SSR

"Protonation of Triphenylphosphazobenzene"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 5, May 71, pp 1027-1031

Abstract: 4-Triphenylphosphazobenzene (I) are protonated in alcoholic solution of 1N HCl principally at the triphenylphosphazo group. When the strength of hydrochloric acid is increased to the level of 3-6 N, the tautomeric equilibrium is shifted slightly towards the azo group salts. The differences in absorption maxima of (I) spectra taken in neutral and acid media (4N HCl) correlate with the σ^- constants of the 4'-position substituents. In comparison to 4-amino- and 4-dimethylaminoazobenzenes, the 4-triphenylphosphazobenzene are more basic by about 5-6 pKa units. Although accurate comparisons were not possible, the basicity constants of (I) type c compounds correlate with the σ^0 and σ^- constants of the substituents on the 4-position.

1/1

USSR

UDC 547.419.1

ZHMUROVA, I. N., YURCHENKO, R. I., and KIRSANOV, A. V., Institute of Organic Chemistry, Acad. Sc. Ukrainian SSR

"Auxochromic Action of the Phosphazo Group. V"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 4, Apr 71, pp 776-781

Abstract: The reaction of triphenylphosphine with 4-azidoazobenzene or that of 4-aminoazobenzene with triphenyldibromophosphorus yields 4-triphenylphosphazobenzenes $p-(C_6H_5)_3P:NC_6H_4N:NC_6H_4X-p$; X, m.p. given: H, 174-176°; Cl, 174-176°; F, 175-177°; $2'NO_2$, 141.5-142.5°; NO_2 , 203-205°; OH, 221-223°; OCH_3 , 167-169°; $N(CH_3)_2$, 225-227°; $N:P(C_6H_5)_3$, 272-273°; and CH_3 , 167-168°. In these compounds the triphenylphosphazo group has a definite effect on the color, similar to the effect of the dimethylamine group in 4-dimethylaminoazobenzenes. The reaction of sodium azide with diazo-4-aminoazobenzene or 4,4'-diaminoazobenzene gave the corresponding 4-azido and 4,4'-diazidoazobenzenes $p-N_3C_6H_4N:NC_6H_4X-p$; X and m.p. given: $2'NO_2$, 112-114°; NO_2 , 131-132°; OH, 125-127°; $N(CH_3)_2$, 128-130°; and N_3 , 139-141° (d).

1/1

- 30 -

USSR

UDC 547.558.1

ZHMUROVA, I. N., TOLMACHEV, A. I., YURCHENKO, R. I., and SLOMINSKIY, Yu. L.,
Institute of Organic Chemistry, Ukrainian Academy of Sciences

"The Auxochromic Action of the Phosphazo Group"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2553-2557

Abstract: In various symmetrical and asymmetrical thiocarbocyanines, styryls and merocyanines tested, it was found that the triphenylphosphazo group has the same auxochromic effect as the dimethylamino group.

1/1

USSR

UDC 547.558.1

ZHMUROVA, I. N., YURCHENKO, R. I., and KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Auxochromic Action of Phosphazo Group. III"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 982-986

Abstract: The condensation of p-triphenylphosphazobenzaldehyde or p-triphenylphosphazobenzalaniline with quaternary salts of nitrogen heterocycles, 1-phenyl-3-methyl-5-pyrazolone and N-ethylrhodanine gives salt-like or intraionoid dyes. The auxochromic action of the phosphazo group in these dyes resembles the action of the classical auxochrome -- the dimethylamino group.

1/1

USSR

UDC: 620.179.05: 538.54.083.8

TRILISSKIY, V.M., MALINKA, A.V., SOSNINA, L.L.,
YURCHENKO, S.V., SOSNOVSKIY, M.I. and CHERNEY, L.I.

"Automatic Eddy-Current Installation for Control of Continuity,
Diameter and Wall Thickness of Seamless, Stainless Pipes"

Sb. Electromagnit. metody nerazrushayushch. Kontrolya (Symposium
on Electromagnetic Methods of Nondestructive Control) Minsk, Nauka
i Tekhnika Publishing House, 1971, pp 139-142 (from Referativnyy
Zhurnal-Metrologiya i Izmeritel'naya Tekhnika, No 8, 1972, Abstract
No 8, 32, 224)

Translation: An automatic installation to detect defects, and to measure
the wall thickness and the outside diameter of seamless, cold-drawn,
stainless pipes of 6-12 mm diameter is described. The basic part of
the automatic installation is the control system, including the servo-
mechanism, common circuits, centering and drawing mechanisms,
electronic analyzing blocks and actuator mechanisms. The control
1/2

USSR

TRILISSKIY, V. M., et al., Sb. Elektromagnit. metody nerazrushayushch. Kontrolya, 1971, pp 139-142

system includes also a mimic bus consisting of several MTx-90 tubes and making it possible to monitor the operation of the mechanisms and instruments. The electronic part of the control system makes it possible to detect separately the external and internal defects, the deviations of the wall thickness and mean diameter. The instruments are set according to calibrating devices. Two indicating blocks contain an electronic radiation tube with rotary scanning, synchronized with the rotation of printed pickups. The line is handled by a single operator. The pipes pass through an automatic control device. The defects are marked with dye. The pipe ends are marked by means of an electric arc device. After marking, the pipes are sorted into containers.

2/2

- 177 -

USSR

UDC 539.3

TUL'CHIY, V. I., KICHIGIN, V. G., SAPRYKINA, L. T., and YURCHENKO, T. A.,
Nikolayev Shipbuilding Institute

"Concerning the Equilibrium of a Plate With Arbitrarily Situated Reinforced
Circular Apertures"

Kiev, Prikladnaya Mekhanika, No 1, 1971, pp 61-67

Abstract: The article deals with the two-dimensional stressed state of an infinite isotropic plate with any number of arbitrarily situated circular openings, the edges of which are reinforced by narrow elastic rings. The boundary conditions are written down with use of the complex Kolosov-Muskhelishvili potentials. By means of the series method in combination with the method of Cauchy-type integrals, the problem is reduced to an infinite quasiregular system of equations, which is realized on a digital electronic computer by the truncation method. The numerical data of some calculations are presented, which make it possible to ascertain the influence of the number of apertures on the stressed state of the plate. 2 figures, 1 table, 4 bibliographic entries.

1/1

USSR

UDC 546.185

ZEMUROVA, I. N., YURCHENKO, V. G., and KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"Effect of the Substituents at the Phosphorus Atom on the Auxochromic Action of the Phosphazo Group. I"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1944-1948

Abstract: On the basis of a series of phosphazobenzenes it was shown that an increase or decrease in the electron donor effect of the substituents at the phosphorus atom has practically no effect on the auxochromic action of the phosphazo group.

1/1

USSR

UDC 546.185:541.651.2

ZHMUROVA, I. N., YURCHENKO, V. G., KUKHAR', V. P., and ZOLOTAREVA, L. A.,
Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"The Effect of the Substituents at the Phosphorus Atom on the Reactivity
and Electron Donor Properties of the Phosphazo Group"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2656-
2660

Abstract: In an attempt to compare the effects of substituents on the
basicity constants and electron spectra of phosphazobenzenes, pK_a values
of a series of triazylphosphazobenzenes were determined. The basicity
constants vary considerably with the electron nature of alkyl substituents --
up to 6-7 pK_a units. The substituents at the phosphorus atom have a lesser
influence on the electron donor properties of the phosphazo group in the
excited state than on the reactivity of the P:N.

1/1

USSR

UDC 546.185

ZHMUROVA, I. N., YURCHENKO, V. G., MARTYNYUK, A. P., and KIRSANOV, A. V.,
Institute of Organic Chemistry, Academy of Sciences, UkrSSR

"Effect of the Substituents at the Phosphorus Atom on the Auxochromic Action of
the Phosphazo Group. II"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1948-1953

Abstract: On the basis of a series of phosphazobenzenes and phosphazoazobenzenes
it was shown that introduction of electron donor substituents onto phenyl radi-
cals of the triphenylphosphazo group had practically no effect on its auxochromic
action.

1/1

- 24 -

USSR

UDC 547.588.1

ZHMUROVA, I. N., YURCHENKO, V. G., and YURCHENKO, R. I., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Reactions of the Substituents of Triarylphosphazobenzenes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2190-2194

Abstract: Absorption maxima in the electronic spectra of 1-phenyl-3-methyl-4-nR-benzylidenepyrazolones-5 are directly related to the reaction constants of the electron-donating substituents R. Reaction constants were calculated for several electron donating substituents of the triarylphosphazo group. The transmission factor of the grouping $-C_6H_4P=N-$ in an excited state was determined.

1/1

- 36 -

USSR

UDC 546.185

ZHMUROVA, I. N., YURCHENKO, V. G.

"Linear Dependence of the Absorption Peaks of the Electron Spectra of Triarylphosphazo Compounds on $\sum \sigma_p$ of the Aryl Radicals"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 86-90

Abstract: The presence of a linear relation between ν_{\max} of the long wave $\pi - \pi^*$ bands of the electron spectra of triarylphosphazo benzenes, $(n-RC_6H_4) \cdot n-R'C_6H_4) (n-R''C_6H_4)P=NC_6H_4X-n$ and $\sum \sigma_p$ of the aryl radicals (see also [I. N. Zhmurova, et al., ZhOKh, Vol 42, No 12, 1972]) opens up the possibility of calculating σ_p of different substituted phenyls. In order to determine the accuracy of calculating σ_p of the aryl radicals by the values of ν_{\max} of the triarylphosphazobenzenes, these values were calculated for groups with sharply differing values of σ_p — $CF_3C_6H_4$ and $(CH_3)_2NC_6H_4$. The parameters of the correlation equations reflecting the linear dependence of ν_{\max} of a series of triarylphosphazo compounds on $\sum \sigma_p$ of the aryl radicals

USSR

ZHMUROVA, I. N., and YURCHENKO, V. G., et al., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 86-90

cals are tabulated. The experimental procedures for obtaining 16 of the compounds are given.

2/2

USSR

UDC 546.185

ZHMUROVA, I. N., YURCHENKO, R. I., YURCHENKO, V. G., TUKHAR', A. A., and
KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences Ukraine SSR
"Electrophillic Constants (σ^+) of Phosphazo Groups"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 779-785

Abstract: Correlation equations between ν_{\max} of para-disubstituted benzenes $\text{XC}_6\text{H}_4\text{Y}$ -- where X is a fluctuating donor and Y is a stable acceptor -- and the electrophillic constants of the X group may be used to calculate the σ^+ of new electron-donor groups. This linear relationship between ν_{\max} and σ^+ was determined for benzaldehydes, acetophenones, nitrobenzenes, azobenzenes, and nitroazobenzenes in ethanol, acetonitrile, heptane, hexane, and isooctane. The σ^+ values of the phosphazo group were determined from these. Data on both ν_{\max} and σ^+ are given in four tables and a graph. The change in the electronic configurations of groups in the phosphorus atom had little influence on the σ^+ .

.1/1

USSR

PUTYATIN, Ye. P., YURCHENKO, V. P., ABRAMOV, O. M., LEVIKOV, V. B.,
BERMAN, V. A.

"Normalization of Rotations of Flat Images"

Probl. Bioniki. Resp. Mezhd. Temat. Nauch.-Tekhn. Sb. [Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection], 1972, No 9, pp 61-69 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V706, by the authors).

Translation: With the goal of further development of the theory of construction of normalization operators for patterns subjected to rotation transformation, the unambiguity of correction of patterns to a standard position is studied, as well as the effects of interfering factors -- changes in brightness and background level.

1/1

- 107 -

USSR

UDC: 621.391.19

PUTYATIN, Ye. P., SHUL'GIN, I. V., YURCHENKO, V. P., ABRAMOV, O. M., Khar'-
kov Institute of Radioelectronics

"A Device for Normalizing the Size of Flat Images for Pattern Recognition
Systems"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 10, Apr 72, Author's Certificate No 332477, Division G, filed 13 Aug 70,
published 14 Mar 72, p 200

Translation: This Author's Certificate introduces: 1. A device for nor-
malizing the size of flat images for pattern recognition devices. The
device contains a rotating platform which carries a television tube with
deflecting coils, a photoelectric module for computing the coordinates of
the center of gravity of the image, photographic objective lenses, and
photocells with slit masks. The device also contains an electric drive
unit for rotating the platform, and also line and frame scanning gener-
ators. The input of the electric drive unit is connected to the outputs
of the photocells, and the outputs of the drive are connected through a
delay line to the controlling input of a video amplifier which is con-

1/3

USSR
PUTYATIN, Ye. P. et al., USSR Author's Certificate No 332477

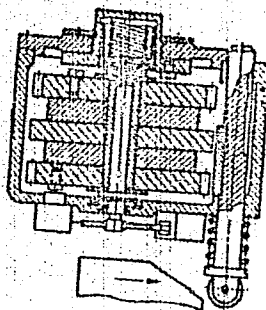
connected between the output of the television tube and a video monitoring and a computing module. As a distinguishing feature of the patent, in order to reduce the requirements for displacements and changes of scale of the images to be transformed, the device contains multipliers whose first inputs are connected to the outputs of the photoelectric module for computing the center of gravity of the image, while the second inputs are connected to the outputs of the frame and line scanning generators respectively. The outputs of the multipliers are connected to the corresponding coils. 2. A modification of this device distinguished by the fact that the electric drive unit for platform rotation contains two channels comprised of an inhibit circuit, a power amplifier, and an actuating motor connected in series. One input of the inhibit circuit is connected to the output of the corresponding photocell, and the other input of the inhibit circuit is connected to the output of the reference voltage source. The second output of each inhibit circuit is connected to the corresponding output of the electric drive unit.

2/3

- 53 -

USSR

PUTYATIN, Ye. P. et al., USSR Author's Certificate No 332477



3/3

Vacuum Tubes

USSR

UDC: 621.385.832:621.375.8

YURCHENKO, V. P.

"A Method of Testing Cathode Ray Tubes for Vibration Resistance"

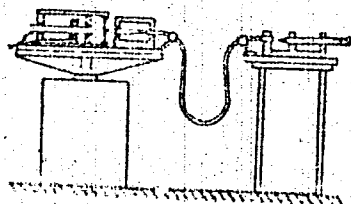
Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 4, Feb 71, Author's Certificate No 292199, Division H, filed 21 Mar 66,
published 6 Jan 71, p 141

Translation: This Author's Certificate introduces a method of testing cathode ray tubes for vibration strength. The procedure is based on observing the moving spot on the screen of the cathode ray tube by forming a stationary focused luminous spot and transmitting it through an optical system to a measuring and registration device. As a distinguishing feature of the patent, the method is designed to eliminate the effect of the test stand, and to improve the precision of measuring displacements of the spot on the screen of the cathode ray tube. The observed section of the screen of the cathode ray tube is projected through a microscope lens onto the end of a flexible fiber optics light guide with regular arrangement of the fibers. The light guide is securely fastened to the screen of the cathode ray tube, and the opposite end is brought out beyond the range of the vibration stand to a stationary measurement platform where the vibration strength of the cathode ray tube is determined from the change in measured dimensions and brightness of the image of the spot projected from the screen of the cathode ray tube during vibration and when there is no vibration.

1/2

USSR

TURCHENKO, V. P., USSR Author's Certificate No 292199



2/2

- 135 -

1/2 026 UNCLASSIFIED
TITLE--PLASTIC OPERATIONS ON THE SCLERA -U- PROCESSING DATE--20NOV70
AUTHOR--(03)-SCMOV, YE.YE., YURCHENKO, V.V., KOMPANETS, N.A.
COUNTRY OF INFO--USSR
SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, NO 3, 1970, PP 32-30
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--WOUND, EYE, PLASTIC SURGERY, TISSUE TRANSPLANT, ADHESION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0391 STEP NO--UR/0177/70/000/003/0032/0036
CIRC ACCESSION NO--AP0137104
UNCLASSIFIED

272

026

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134164

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PENETRATING WOUNDS OF THE SCLERA WITH THE FORMATION OF A DEFECT OF THE TISSUE ARE AMONG THE ESPECIALLY SEVERE DAMAGES OF THE ORGAN OF VISION WHOSE TREATMENT INVOLVES GREAT DIFFICULTIES. A PROBLEM OF PARAMOUNT IMPORTANCE IS THE TIMELY AND RELIABLE REESTABLISHMENT OF THE HERMETIC SEAL OF THE EYEBALL AND THE CREATION THANKS TO THAT OF CONDITIONS CONTRIBUTING TO THE NORMALIZATION OF ITS TONUS AND A FAVORABLE COURSE OF THE REPARATIVE PROCESSES. TO ACHIEVE THAT GOAL SOLELY BY MEANS OF THE OPEN Sutures ORDINARILY USED IN SURGERY OF WOUNDS OF THE EYEBALL WITH DEFECT OF THE TISSUE DOES NOT SEEM POSSIBLE. THEREFORE IT CAN BE A MATTER ONLY OF PLASTIC CLOSURE OF THE SCLERAL DEFECT. THE PURPOSE OF OUR EXPERIMENTS WAS TO STUDY THE PLASTIC PROPERTIES OF TRANSPLANTS OF DIFFERENT NATURE INTENDED FOR THE REPLACEMENT OF SCLERAL DEFECTS. SIMULTANEOUSLY A DETERMINATION WAS MADE OF THE INFLUENCE OF THE BIOLOGICAL ACTIVITY OF AUTO AND HOMOTRANSPLANTS ON THE CHARACTER OF THEIR ADHESION, AND ALSO A SEARCH WAS MADE FOR THE MOST RATIONAL WAYS TO CLOSE TRAUMATIC DEFECTS OF THE WALL OF THE EYEBALL.

UNCLASSIFIED

USSR

UDC 621.382.322

URITSKIY, V. Ya., TSVETKOV, V. V., YURCHENKO, Ye. P.

"To the Problem of Stability of Metal-Dielectric-Semiconductor Transistors"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Technology. Scientific-Technical Collection. Microelectronics), 1970, Issue 5(26), pp 154-156 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B159)

Translation: It is shown that the effect of migration of a negative charge on the outer surface of the oxide determines to a considerable degree the stability of a metal-dielectric-semiconductor transistor, giving rise to an increase of the residual current. However, with a specific construction of the MDS transistor, the migration of the negative charge does not affect the stability of these devices. Summary.

1/1

USSR

UDC: 621.039.5/68:004.6

YURCHENKO, Yu. F., MURAV'YEV, V. F., PYATUNIN, B. A., and MALYAVIN, B. G.

"Choice of Metal-Cutting Methods in Reactor Repair"
Moscow, Atomnaya energiya, No 6, 1973, pp 427-434

Abstract: Because of the radiation hazard in repairing reactors, there is a great deal of interest in finding and developing methods of cutting metals safely and remotely in air or under water. These methods are discussed in the present article. Mechanical or plasma methods of cutting are usually employed; the former, however, involve equipment difficult to design and construct, and are usually designed for individual operations; the latter plasma methods are limited by the thickness of the metals to be cut. It has been established that the most acceptable method for reactor repair under specific conditions is the electrical contact method since it can be done with relatively inexpensive material requiring low power levels for operation. This system is explained and various examples of its applications given.

1/1

- 24 -

USSR

Heat Treatment

UDC 621.791.856.3:620.193.41

YURCHENKO, YU. F., SOTNICHENKO, A. L., AZAPOV, G. I., KOMISSAROV, V. G., and SHURAKOV, S. A.

"Effect of Heat Treatment on the Structure and Corrosion Resistance of the Metal In the Heat-Affected Zone of Joints of Kh18N10T Steel"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 71, pp 8-11

Abstract: Studies were made on joints of 1Kh18N10T pipe 57 mm in diameter with a wall thickness of 3 mm produced by argon-arc welding. After welding, a portion of the joints were tempered at 700°C for 2, 10, 100, and 1000 hours; the other portion was quenched in water after heating for different times at 1000-1250°C. Heat treatment of 1Kh18N10T weld joints increases the rate of knife corrosion and expands the front of its development. This was caused by precipitation, at this temperature, of chromium carbides of the type $Me_{23}C_6$ along the grain boundaries of the heat-affected zone. Holding at 700°C for 10-100 hours leads to coalescence and dissolution of these carbides and to the appearance of the sigma-phase at the grain boundaries. In this case the carbon, being freed in the dissolution of metastable chromium carbides, is bonded in carbides of titanium which are basically distributed in the body of austenite grains. However this process diminishes the rate of knife corrosion. Quenching joints from 1000-1150°C lowers (by 1.5-5 times) the rate of knife

1/2

USSR

YURCHENKO, YU. F., etal, Kiev, Avtomaticheskaya Svarka, No 6, Jun 71, pp 8-11

corrosion. This has been associated with a change in the type of carbides of titanium in the heat-affected zone, by redistribution and removal of internal stresses, as well as with the elimination of concentration heterogeneity of austenite in grain bodies and in their boundaries. Increasing quenching temperature (1150-1250°C) leads to homogenization of all zones of the weld joint and prevents knife corrosion; Reheating joints for quenching above 1250°C increases the rate of knife corrosion. 7 figures, 2 bibliographical references.

2/2

- 24 -

Powder Metallurgy

USSR

UDC 621.762.5.001

SKOROKHOD, V. V., and YURCHENKO, YU. P., Institute of Problems of Material Science, Academy of Sciences USSR, Institute of Metal Physics, Academy of Sciences USSR

"Calorimetric Studies of Processes Occurring in Nickel Powders During Heating"

Poroshkovaya Metallurgiya, No 4(100), Apr 71, pp 27-31

Abstract: A precision differential vacuum calorimeter was used in an investigation of reactions occurring in nickel powders during heating. Electrolytic and carbonyl nickel powders as well as nickel filings were studied by x-ray methods. Calorimetric analysis showed a significant difference in the liberation of heat characteristics of nickel filings and the nickel powders.

On heating electrolytic and carbonyl nickel powders, two sharp heat liberation maxima were observed. The first is related to gas desorption and the second to recrystallization processes. The first maximum corresponds closely to the temperature interval in which there has been observed an increase in the lattice parameters of electrolytic nickel and an annealing of packing defects. In this same region there has been noted a decrease in the size of the microdeformations.

1/2

USSR

SKOROKHOV, V. V., and YURCHENKO, YU. E., et al., *Formshkovaya Metallurgiya*, No 4(100), Apr 71, pp 27-31

Electrolytic nickel powder was found to contain 0.008 wt% hydrogen and a total of 0.3 wt% oxygen and nitrogen. Carbonyl nickel was found to contain 0.004 wt% hydrogen and 0.07 wt% oxygen and nitrogen. Tests carried out at 250, 350, and 500°C in vacuum for one hour to determine the amount of hydrogen showed that hydrogen content decreased monotonically with increasing temperature and did not exceed 0.001 wt% after reaching 500°C.

2/2

- 40 -

USSR

UDC 621.791:620.193.2

YURCHENKO, Yu. F., AGAPOV, G. I., GLEK, L. M., and PAVLOV, S. S., Moscow

"Knife Corrosion Mechanism in Kh18N10T Steel Alloys"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 20-22

Abstract: Although many papers have been devoted to the subject of knife corrosion, very little is known about its mechanism. This type of corrosion advances very rapidly, at about 5 to 10 mm/year, cutting holes in equipment and piping. The purpose of this article is to investigate the mechanism of the process in Kh18N10T steel, specifically in the welding alloys of the chromium-nickel steel. In the experiments, the basic structural components of the steel, chromium-nickel austenite, Cr_3C_2 , and TiC , were electrochemically investigated. Type Kh18N10 steel, after tempering in water from 1100°C , was used as the electrode of chromium-nickel austenite. The Cr_3C_2 and TiC electrodes were obtained by the method of hot sintering and pressing at 1750°C for Cr_3C_2 and 2500°C for TiC , and pressures of 120 kg/cm^2 in the course of five minutes. The electrodes were in the form of disks 15 mm in diameter and 4-5 mm thick. Comparison of the stationary potentials of the Cr_3C_2 and TiC electrodes shows that the potential of the latter is much more negative than that of the former, that the Cr_3C_2

1/2

USSR

YURCHENKO, Yu. F., et al, Avtomaticheskaya Svarka, No 10, Oct 70, pp 20-22

and austenite are cathodes while the TiC are polarized anodes, and that in the introduction of an additional ferrite electrode to form a three-electrode system, the potentials shift into the negative region as a result of cathode polarization.

2/2

- 16 -

USSR

UDC 620.18:659.14

GRIDNEV, V. N., KONCHENKO, V. A., LARIKOV, I. N., KESHKOV, YU. YA.,
RAFALOVSKIY, V. A., and YURCHENKO, YU. F., Institute of Metal Physics, Academy
of Science, Ukr SSR

"Effect of Plastic Deformation on the Tempering Processes of a Quenched Steel"

Kiev, Metallofizika, No 39, 1972, pp 51-54

Abstract: The features taking place in the tempering of martensite by the simultaneous action of heating steel 70 to 250°C while imparting plastic deformation by drawing (almost 10%) were studied. From the obtained calorimetric and dilatometric data it follows that during this treatment, along with acceleration of the metastable phase (martensite and austenite) decomposition, being accompanied by lowering of defect density from hardening origin and weakening of the steel, another process occurs--that of martensite decomposition products as a result of plastic deformation yielding the accumulation of new defects which increase the internal energy of the system and stimulate a more complete occurrence of the phenomena of recrystallization during repeated heating. 2 figures, 7 bibliographic references.

1/1

Converters

USSR

UDC 681.335.82

MASYURENKO, YU.A., YURCHENKO, YU.P.

"Time-Pulse Voltage Converter Based On Integrated Microcircuits"

Moscow, Pribory i Tekhnika Eksperimenta, No 5, Sept-Oct 1971, pp 114-115

Abstract: The principal circuit and the characteristics of a time-pulse voltage converter are described. The converter is built-up on the basis of two K1UT401B integrated circuits (operational d-c amplifier with differential input "Istok") and a K1TR131 microcircuit (trigger with separate input, series "Microwatt-1"). Use of integrated microcircuits assures stability of the characteristics, reliability of the device, and small dimensions and weight. The principal error does not exceed 0.05 percent in the range of input voltages of 0.05 - 5 v, and the additional error from a temperature change in the range 5 - 50° C is 0.1 percent at 10° C. The speed of response is 500 conversions/sec. Received by editors 19 Apr 71. 2 ref. 1 fig. [Institut Elektrodinamiki AN USSR, Kiev--Institute Of Electrodynamics, Academy Of Sciences, UkrSSR, Kiev]

USSR

UDC 621.396

YURCHENKO, YU. S.

"Effect of Fluctuation Noise on a Single-Pulse Angle Gage"

Kiev, Izvestiya vysshikh uchebnykh zavedeniy-Radioelektronika, Vol XIV, No 8, 1971, pp 894-901

Abstract: The effect of fluctuation noise of the white and narrow-band type and also in the form of fluctuating pulses similar with respect to shape to the signal pulses on a single-pulse angle gage with cumulative-difference processing and a phase detector in the form of a multiplier, was investigated. Expressions were obtained for the zero drift of the discrimination characteristic and the spectral density of the equivalent angular fluctuations.

The fluctuation noise received by the side lobes of the antenna directivity diagram can cause zero drift of the discrimination characteristic of the angle gage and a fluctuation component of the error in measuring the angular coordinates. In the case of signal and noise fluctuations which are fast with respect to the time constant of the tracking system, the zero drift of the discrimination characteristic leads to the occurrence of an additional

1/2

USSR

YURCHENKO, YU. S., Izvestiya vysshikh uchebnykh zavedeniy---Radioelektronika,
Vol XIV, No 8, 1971, pp 894-901

component of the fluctuation error which depends on the fluctuations of the reflected signal. In the case of slow amplitude fluctuations of the signal and noise, the magnitude of the zero drift of the discrimination characteristic becomes a time function. In the latter case, stable drift is possible only in the case of fast (with respect to the time constant of the tracking system) variation of the phase difference of the signal and noise.

2/2

USSR

UDC: 621.373

GRISHIN, Yu. P., NOVOSEL'TSEVA, T. Ya., TOLOKONNIKOV, S. V., CHIRITSO, R. L.,
YURCHENKO, Yu. S.

"A Precision Delayed-Pulse Oscillator"

V sb. Obmen opytom v radiopromyshlennosti (Experience Pooling in the Radio
Industry--collection of works), Vyp. 6, Moscow, 1970, pp 63-67 (from RZh-
-Radiotekhnika, No 11, Nov 70, Abstract No 11A332)

Translation: Multichannel delay circuits with interpolation scale made in
the form of a digital phase shifter are used for constructing a digital
delayed pulse oscillator. A delay setting discreteness of 10 nsec is at-
tained. Individual descriptions are given of the cadence pulse generator
and the digital phase shifter as the elements which are of the greatest
interest. E. L.

1/1

USSR

YURCHENOK, K. Ye.

"Base Pressure Behind Flat Bodies During Diffusion Near-Wake Combustion"

Tr. Leningr. in-t aviats. priborostr. (Works of Leningrad Institute of Aviation Instrument Manufacture), 1970, vyp. 66, pp 49-56 (from RZh-Mekhanika, No 1, Jan 71, Abstract No 1B1083 by Yu. F. Dityakin)

Translation: The article describes the method and results of calculating the value of base pressure behind flat bodies during diffusion near-wake combustion. It is assumed in the calculation scheme that near-wake flow behind a flat step is turbulent. It is conjectured that the coefficient of turbulent mixing depends only on the longitudinal coordinate. To calculate the velocity profile in the mixing zone the author's formula is used (see Izv. AN SSSR. Mekhan. zhidkosti i gaza [News of the Academy of Sciences USSR: Fluid and Gas Mechanics], No 6, pp 46-49 -- RZh-Mekhanika, 1969, Abstract No 5B216). In order to determine the velocity dependence of density in the mixing zone, a calculation based on a diffusion combustion model was made. An example is given of the calculation of parameters in the mixing zone during the combustion of hydrogen and carbon monoxide in atmospheric
1/2

USSR

YURCHENOK, K. Ye., Tr. Leningr. in-t aviats. priborostr. (Works of Leningrad Institute of Aviation Instrument Manufacture), 1970, vyp. 66, pp 49-56 (from RZh-Mekhanika, No 1, Jan 71, Abstract No 1B1083 by Yu. F. Dityakin)

oxygen. The author obtains the dependence of base pressure on the concentration of hydrogen and carbon monoxide at various Mach numbers. The conclusion is drawn that the combustion of light components in the mixing zone permits a significant increase in the base pressure value.

2/2

- 6 -

USSR

YURCHENOK, K. E., Leningrad

"Base Pressure and Temperature With Supersonic Flow Around a Cut-off Body With Admission of Inert and Chemically Reacting Gas Into Base Zone"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No. 2, March-April, 1971, pp 48-57

Abstract: The effect of admission of inert and chemically reacting gas into the base zone behind an axisymmetric body is investigated theoretically and compared to experimental data. The flow is supersonic and turbulent.

The base pressure is determined by the Korst method. Temperature and concentration are determined on the basis of conservation of enthalpy.

1/2

USSR

YURCHENOK, K.E., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 2, March-April, 1971, pp 48-57

The base pressures as a function of Mach numbers are presented for the case of no gas admitted to the base zone.

In the case of inert gas (argon) and combustible gas (hydrogen) admitted into the base zone the base pressure is given as a function of concentration and temperature of the gas being admitted with constant Mach number and total temperature.

2/2

- 7 -

USSR

UDC 616.988.75-078

SHVARTSMAN, M. N., KARPOVA, G. V., and YURCHIKOVA, L. A., Sanitary-Epidemiological Station of the Sverdlovsk Region, Moscow

"Evaluation of the Suitability of Virological and Cytological Study Methods in Early Diagnosis of Influenza Under Practical Laboratory Conditions"

Moscow, Laboratornoye Delo, No 4, 1970, pp 226-228

Abstract: Considering the laboratory situation, the most suitable method for isolation of influenza virus A2 from the infectious material of patients is the method based on infection of chick embryos, because of its simplicity, availability and high sensitivity; the virus is identified by means of a rapid and sensitive inhibition of hemagglutination. The method for detection of specific antigen based on fluorescing antibodies is very specific and very sensitive, but the absence of cells in preparations (which occurs quite often), diminishes its usefulness as a diagnostic tool. Isolation of influenza virus A2 in cell cultures, using hemadsorption and the cytopathic effect, is 100 and 1000 times less sensitive respectively than the chick embryo method. The cell culture method may be made more sensitive by utilizing fluorescing antibodies, but this certainly does not make it more advantageous than the chick embryo method.

1/1

USSR

UDC 666.764:539.374:536.49

DAUKNIS, V.I., KAZAKYAVICHYUS, K.A., and YURENAS, V.L., Institute of Physical Technical Energy Problems: Academy of Sciences, Lithuanian SSR

"Role of Plastic Deformation in the Thermal Destruction of Refractory Materials"

Moscow, Ogneupory, No 6, 1971, pp 31-35

Abstract: Methods of quantitatively estimating the effect of plastic deformation on the heat-resistant qualities of refractory materials should be further explored. In this article, several methods are developed for making such estimates. The effect of plastic deformation on refractoriness can be considered an aspect of the theory of plasticity or on the basis of creep theory. Since the duration of thermal loading on refractory materials is usually large compared to short-term mechanical loading, on which the plasticity theory is based, it is best to use creep theory based on extended mechanical tests. The authors begin their analysis with an expression for the permissible cooling -- or heating -- velocity in the elastic-viscous state under the condition of full limiting of temperature deformation in one direction, given in terms of the deformation speed under stresses equal to the stability limit, the coefficient of linear expansion, the criterion for thermal stability of the material, the absolute temperature, the elasticity modulus, and the stability limit. Tests were made on fine- and coarse-grained materials made of zirconium

1/2

USSR

DAUKNIS, V.I., et al, Ogneupory, No 6, 1971, pp 31-35

and magnesium oxide developed at the Ukrainian and Eastern Refractory Materials Institutes. Tables of the characteristics of these materials are given. A sketch of the experimental apparatus is reproduced. The authors conclude that the changes in the amount of admixtures and porosity of the material only slightly affect the temperature dependence of thermal stability.

2/2

- 42 -

Refractory Materials

3

USSR

UDC 666.76:620.1

BLUVSHTEYN, M. N. (deceased), ZYKOVA, Z. K. (All-Union Institute of Refractories), DAUKHIS, V. A., PERAS, A. Ya., VIRENAS, V. L., YANULYAVICIYUS, A. I. (Institute for Physical and Technical Problems of Power Engineering, Academy of Sciences Lithuanian SSR), and RABINOVICH, M. A. (Snigirevskiy Plant of Refractory Articles)

"Strength of Ultralight-Weight Refractories"

Moscow, Ogneupory, No 2, June 72, pp 43-47

Abstract: The Institute for Physical and Technical Problems, Academy of Sciences Lithuanian SSR has designed, built, and adapted for practical application an LV-1 set-up for testing the tensile, compressive, and bending strength of ultralight-weight refractories at temperatures up to 1200°C. A BV-662 inductance pickup is used for both measuring and recording the deformation values for the latter two types of stress tests. The test materials were ShLB-0,4 and ShLB-0,6 ultralight-weight refractory bricks. Curves are shown to illustrate the strength values of the bricks as a function of temperature and apparent density. There is only a slight variance in strength values up to 700-800°C. At 900°C there is a marked increase in strength for all types of load tests. At 1000-1100°C and higher

1/2

USSR

BLUVSHTEYN, M. N., et al, Ogneupory, No 2, June 72, pp 43-47

the refractories begin to soften and change to viscoelastic state. The strength drops with an increase in temperature. (7 illustrations, 7 bibliographic references)

2/2

- 40 -

USSR

UDC 69.058.8:627.8.084.12

KHESIN, G. L., Doctor of Technical Sciences and KOSTIN, I. Kh., DMOKHOVSKIY, A. V. and YURENEVA, Ye. V., Candidates of Technical Sciences

"Study of Stresses from Dynamic Effects in Models of Water Engineering Structures by the Method of Photoelasticity"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 1, Jan. 1973, pp 23-29.

Abstract: Studies performed by the method of dynamic photoelasticity of the stress state of models of certain water engineering structures under the influence of dynamic loads are described. The method of investigation is briefly described. Conditions of similarity are presented for construction of models, methods of creation of dynamic loads in models are analyzed, plus problems of recording of the wave picture and interpretation of experimental data. Results are presented from studies performed by the method of dynamic photoelasticity and a table is presented illustrating the solution of engineering problems by this method.

1/1

USSR

UDC: 8.74

YEFIMOV, Yu. N., YURENKOV, Yu. T.

"On a Method of Organizing the Operation of a System of Programs"

Izv. Tomsk. politekhn. in-ta, 1972, 243, pp 105-168 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V635)

Translation: Programs which organize the solution of problems on digital computers are usually designed so that the algorithm of solution of the problem takes the form of a linear sequence of programs. In the solution of many problems (planning, control, etc.) the sequence of programs is more conveniently represented as a graph of nonlinear structure. This paper deals with one of the possible ways of constructing a program which organizes the operation of systems of programs of the above mentioned type. A dispatcher program of this type has been developed for the "Ural-14D" digital computer as a controlling program in the "ASUP-Tomsk" automated production and control system. The "ASUP-Tomsk" is used for production planning and management in several enterprises. The "ASUP-Tomsk" software is a fairly complex system which is most conveniently represented by a nonlinear graph.

1/1

- 53 -

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EXPERIMENTAL ADJUSTMENT OF COUNTERCURRENT H,CATION EXCHANGER
FILTERS IN A SYSTEM OF COMPLETE CHEMICAL DESALINATION -U-
AUTHOR--YURENKOVA, A.G.
COUNTRY OF INFO--USSR
SOURCE--ENERGETIK 1970, (1), 11-12
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--CATION EXCHANGE RESIN, COAL, SULFURIC ACID, DESALINATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0743 STEP NO--UR/0091/70/000/001/0011/0012
CIRC ACCESSION NO--AP0119650
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119650

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE EFFICIENCY OF SULFONATED COAL (H,CATIONITE) (A) PACKED FILTERS OPERATING IN COUNTER FLOW WAS INVESTIGATED PARTICULARLY AS TO THE AMT. OF H SUB2 SO SUB4 USED IN REGENERATING A AND THE TIME REQUIRED TO COMPLETE A REGENERATION CYCLE. THE WATER USED HAD THE FOLLOWING QUALITIES: ALKY 1.7, HARDNESS 2, SO SUB4 PRIME2 NEGATIVE AND CL PRIME NEGATIVE 0.9 MEQUIVS.-KG, PH 7.6-8.2, O CONTENT 3.2-3.6 AND SUSPENDED PARTICLES 3-6 MG-L. OPTIMUM REGENERATION OF A WAS ATTAINED BY USING 15 KG CONCD. H SUB2 SO SUB4-M PRIME3 A WHICH WAS 25-40PERCENT LOWER THAN FOR DIRECT FLOW FILTERS. THE REGENERATION CYCLE OF A WAS REDUCED FROM 55-65 TO 15-20 MIN BY THE USE OF A STREAM OF WATER ON TOP OPPOSING THE RISING ACID WASH FROM THE BOTTOM. AMTS. OF RAW AND FRESH WATER USED IN THE REGENERATION OPERATIONS AND THE QUALITIES OF THE DISCHARGE WATERS ARE DISCUSSED.

UNCLASSIFIED

USSR

BOOK

355

K. E. PAFCK, V. A. FISKUNOV, P.G. YURENYA

UDC 629.7.621.43.019.7.004(021.4)

NAGARY V REAKTIVNYKH DVIGATELYAKH (Scale Formations In Jet Engines), Moscow, "Transport", 1971, 112 pp, illus, biblio, 2,000 copies printed

Considers the formation of scale and its influence on the reliability, efficiency and service life of aviation jet engines. Soviet and foreign materials are generalized for the properties of scale, conditions necessary for its formation, the influence of various factors on its formation. Also considers the formation of scale in relation to the use of fuels of various chemical compositions and fractions, and of various additives. General methods are given for estimating the scale-formation effects of aviation fuels and oils, and practical suggestions are made for reducing scale formation in aviation engines.

Chapter I.	General Information on Scale Formation	10
Chapter II.	Role of Various Factors in the Process of Scale Formation. . .	19
Chapter III.	Scale Formations in Jet Engines	37
Chapter IV.	Methods of Estimating the ScaleFormation Factors of Fuels . .	53
Chapter V.	Estimating the Scale Formation Factor of Fuels by the PFYu (Fayok-Fiskunov-Yurenya) Method	67
Chapter VI.	Scale-Formation Properties of Soviet and Foreign Fuels	84
Chapter VII.	Means and Methods of Reducing Scale Formation in Engines and the Removal of Scale From Engines	91

1/1

- 1 -

Acc. Nr:

AP0046166

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR 0065

A70-22472 # Dynamics of a carbon-deposit formation in gas turbine engines (O dinamike formirovaniia nagara v gazoburbinnykh dvigateliakh). V. A. Piskunov and P. G. Iurenko. *Khimiia i Tekhnologiiia Topliv i Masel*, vol. 15, no. 1, 1970, p. 47-49. In Russian.

Study of the properties of thermal insulation due to carbon deposits on fire tubes, formed during the operation of a gas turbine, using different fuels. Special attention is given to the fuels T-1 and T-5 specified by GOST 10227-62. It is found that the carbon deposits form at a very high rate, and exhibit a low thermal conductivity. As a result, their occurrence on the walls of the fire tubes essentially affects the thermal state of these tubes.

Z.W.

ALS

REEL/FRAME

19781243

1/2 015 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--PHOTOPROTONS FROM THE BORON 11 NUCLEUS -U-
AUTHOR--(04)-SGROKIN, YU.I., SHARDANOV, A.KH., SHEVCHENKO, V.G., YUREV,
B.A.
COUNTRY OF INFO--USSR
SOURCE--YAD. FIZ. 1970, 11(1), 8-18
DATE PUBLISHED--70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PHOTONUCLEAR REACTION, PROTON SCATTERING, BORON ISOTOPE,
BREMSSTRAHLUNG, ANGULAR DISTRIBUTION, PROTON SPECTRUM, EXCITATION CROSS
SECTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1980/0176 STEP NO--UR/0367/70/J11/001/0008/0018
CIRC ACCESSION NO--AP0048468
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0048468

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ENERGY DISTRIBUTIONS OF PHOTO P EMITTED FROM PRIME11 B NUCLEI, EXPOSED TO THE 16.5- AND 18.5-MEV BREMSSTRAHLUNG AND THE PHOTO P ANGULAR DISTRIBUTION AT 18.5 MEV WERE MEASURED. THE P WERE REGISTERED IN NUCLEAR PHOTOPLATES. IN THE PHOTO P SPECTRA A GREAT NO. OF MAX. WAS OBSD. THAT WERE DUE TO THE EXCITATION OF LEVELS OF THE PRIME11 B NUCLEUS IN THE ENERGY REGION 12-18.5 MEV. THE CROSS SECTIONS WERE OBTAINED FOR THE REACTION PRIME11 B(GAMMA, P) PRIME10 BE WITH THE FINAL PRIME10 BE NUCLEUS IN THE GROUND STATE AND IN THE 1ST EXCITED STATE. THE RADIATION WIDTHS OF THE OBSD. LEVELS OF PRIME11 B WERE ESTD. THE ANAL. OF THE RESULTS ENABLES ONE TO DEDUCE INFORMATION CONCERNING THE MULTIPOLARITIES OF THE GAMMA TRANSITIONS AS WELL AS SPINS AND PARITIES OF THE EXCITED STATES OF THE PRIME11 B NUCLEUS. FACILITY: INST. YAD. FIZ., MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 51:330.115

YUREVICH, A. R.

"Use of a Slide Rule for Calculating and Analyzing Network Graphs"

Mekhaniz. ucheta i vychisl. rabot. Mezhved. nauch. sb. (Mechanization of Accounting and Computing Jobs. Interdepartmental Scientific Collection), 1970, vyp. 11, pp 71-80 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V663)

Translation: The paper deals with problems in the theory of constructing a slide rule for analyzing and calculating PERT networks. A detailed description is given of the design of the rule. Methods are described for mechanizing the computation of design and analysis of the parameters of network graphs, and methods of calculating deadlines for jobs from the given calculations of the network graph, or the time for starting production of finished articles. Examples are given of mechanizing the calculation of these parameters of a PERT network. Recommendations are given for making the slide rule, and the results of its practical use are presented. Author's abstract.

1/1

- 41 -

USSR

UDC: 621.762:669.018.25(088.8)

POVIDAYLO, V. A., SILIN, R. I., TUMANOV, V. I., YUREVICH, R. V.

"Method of Processing of Metal Ceramic Products"

USSR Author's Certificate Number 354939, Filed 26/02/71, Published 13/11/72
(Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G441), by S. Krivonosova).

Translation: The method suggested includes surface oxidation of products in air at 850-950°, cooling and subsequent removal of the oxide layer by vibration. In order to increase the mechanical properties of the products and simplify the technology of their processing, products are oxidized in a stream of compressed air heated to the oxidation point, then cooled at up to 100°/min. The method can be used in the production of hard alloy drilling and cutting tools, for example for hardening of hard-alloy teeth of drilling machines.

1/1

YUREVICH, V. A.

JPRS 59567
20 July 1973

(2)

THE ZVENIGOROD EXPERIMENTAL STATION

[Article by V. P. Ozimenko and Candidate of Physical and Mathematical Sciences V. A. Yurevich, Moscow, Zemlya i Vozdushnaya, Russian, No 6, 1972, pp 54-57]

Stations for optical observations of artificial earth satellites began to be created in astronomical observatories, universities and many pedagogical institutes of our country in 1957. The Zvenigorod station, however, was formed within the system of the Astronomical Council as an experimental station. Besides observations, the work of the station includes the designing and mastering of cameras for tracking satellites and the creation of new photographic methods of observation. The organizers of the station were Ye. Z. Gindlin, A. G. Mosevich, and A. M. Lozinskiy.

The station was located on the old grounds of the State Astronomical Institute named P. K. Shernberg in Moscow, but already in 1958 it was transferred to one of the picturesque regions of Podmoskov'ye, in the vicinity of Zvenigorod, where conditions for astronomical observations are especially favorable.

At first the co-workers of the station used photographic cameras which seem small in comparison with modern giant telescopes. The diameter of the camera lenses was 10 cm and the focal distance was 25 cm. These cameras served science well, and many thousands of photographs of artificial earth satellites were made with them. The photographs were used to refine the theoretical calculation of orbits and ephemerides of satellites, to determine the density of the atmosphere of some of the planets, for example, to explain the motion of a satellite in orbit.

- 1 -

[I - USSR - AJ]

YUREVICH, KA

1. TITLE AND NUMBER		2. REPORT NO.		3. REPORT DATE	
THE ZVENIGOROD EXPERIMENTAL STATION		JPRS 59567		20 JULY 1973	
4. AUTHOR(S)		5. PERFORMING ORGANIZATION NAME(S)		6. PERFORMING ORGANIZATION REPORT NUMBER	
V.P. YUREVICH, V.A. YUREVICH		Joint Publications Research Service		1000 North Glebe Road	
7. ADDRESS		8. PERFORMING ORGANIZATION NAME(S)		9. PERFORMING ORGANIZATION REPORT NUMBER	
Arlington, Virginia 22201		10. PERFORMING ORGANIZATION NAME(S)		11. PERFORMING ORGANIZATION REPORT NUMBER	
12. Sponsoring Organization Name and Address		13. Title of Report or Period Entered		14. Date of Report or Period Entered	
As Above					
15. Supplementary Notes					
ZVENIGOROD I VSELENNAYA, No 6, 1972, Moscow, Izdatel'stvo Nauki					
16. Abstracts					
The report contains a discussion on the Zvenigorod Station, which was formed within the system of the Astronomical Council as an experimental station for optical observations of artificial earth satellites. The work of the station includes the designing and mounting of cameras for tracking satellites and the creation of new photographic methods of observation.					
17. Key Words and Phrases in Analysis					
USSR Navigation, Communications, Detection, and Countermeasures Optical Detection Space Technology Spacecraft trajectories and reentry					
18. Distribution/Availability Status					
The USSR is the only country in the world to have a station of this type.					
19. Availability Statement					
Sold by NTIS Springfield, Virginia 22151					
20. Form May Be Reproduced					
21. Form May Be Reproduced					
22. Form May Be Reproduced					
23. Form May Be Reproduced					
24. Form May Be Reproduced					
25. Form May Be Reproduced					
26. Form May Be Reproduced					
27. Form May Be Reproduced					
28. Form May Be Reproduced					
29. Form May Be Reproduced					
30. Form May Be Reproduced					
31. Form May Be Reproduced					
32. Form May Be Reproduced					
33. Form May Be Reproduced					
34. Form May Be Reproduced					
35. Form May Be Reproduced					
36. Form May Be Reproduced					
37. Form May Be Reproduced					
38. Form May Be Reproduced					
39. Form May Be Reproduced					
40. Form May Be Reproduced					
41. Form May Be Reproduced					
42. Form May Be Reproduced					
43. Form May Be Reproduced					
44. Form May Be Reproduced					
45. Form May Be Reproduced					
46. Form May Be Reproduced					
47. Form May Be Reproduced					
48. Form May Be Reproduced					
49. Form May Be Reproduced					
50. Form May Be Reproduced					
51. Form May Be Reproduced					
52. Form May Be Reproduced					
53. Form May Be Reproduced					
54. Form May Be Reproduced					
55. Form May Be Reproduced					
56. Form May Be Reproduced					
57. Form May Be Reproduced					
58. Form May Be Reproduced					
59. Form May Be Reproduced					
60. Form May Be Reproduced					
61. Form May Be Reproduced					
62. Form May Be Reproduced					
63. Form May Be Reproduced					
64. Form May Be Reproduced					
65. Form May Be Reproduced					
66. Form May Be Reproduced					
67. Form May Be Reproduced					
68. Form May Be Reproduced					
69. Form May Be Reproduced					
70. Form May Be Reproduced					
71. Form May Be Reproduced					
72. Form May Be Reproduced					
73. Form May Be Reproduced					
74. Form May Be Reproduced					
75. Form May Be Reproduced					
76. Form May Be Reproduced					
77. Form May Be Reproduced					
78. Form May Be Reproduced					
79. Form May Be Reproduced					
80. Form May Be Reproduced					
81. Form May Be Reproduced					
82. Form May Be Reproduced					
83. Form May Be Reproduced					
84. Form May Be Reproduced					
85. Form May Be Reproduced					
86. Form May Be Reproduced					
87. Form May Be Reproduced					
88. Form May Be Reproduced					
89. Form May Be Reproduced					
90. Form May Be Reproduced					
91. Form May Be Reproduced					
92. Form May Be Reproduced					
93. Form May Be Reproduced					
94. Form May Be Reproduced					
95. Form May Be Reproduced					
96. Form May Be Reproduced					
97. Form May Be Reproduced					
98. Form May Be Reproduced					
99. Form May Be Reproduced					
100. Form May Be Reproduced					

USSR

UDC 621.313.322.013.8.001.24

BABKO, L. V., YURGANOV, A. A., YUREVICH, YE. I.

"Optimal Emergency Control of the Generating Units of Power Systems"

V sb. Vozbuzhdeniye, regulir. i ustoychivost' sinkhron. mashin (Excitation, Regulation and Stability of Synchronous Machines -- collection of works), Leningrad, Nauka Press, 1970, pp 42-50 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye207)

Translation: A study is made of optimal nonlinear control of the excitation of a turbogenerator as applied to the standard power system. The equations describing the motion of the object are reduced to a form which is convenient for application of the principle of the maximum. The combined criterion of optimality insuring maximum limits of dynamic stability is investigated, and a procedure is described for determining the control corresponding to this criterion. The study was performed on an analog computer, and the results were checked on an electrodynamic model. There are 3 illustrations and a 4-entry bibliography.

1/1

- 113 -

USSR

UDC 619:616.981.42-078:636.22/.28

MUFTEYEV, F. G. and KONOVALOV, I. F., Bashkir Scientific and Practical
Veterinary Laboratory, ASHATKIN, A. F., YUREYCHUK, V. P., and GUS'KOV, V. V.,
Primorskiy Kray

"Allergic Diagnosis of Brucellosis"

Moscow, Veterinariya, No 11, 1972, pp 59-61

Abstract: The use of brucellin resulted in the detection of diseased cattle that did not react serologically to brucellosis. In herds where the course of the disease was acute, 7.8 to 24% more animals reacted positively to the preparation than in the agglutination and complement-fixation tests. Antibodies were found in almost half of the positive within 15 to 30 days. Brucellin was injected subcutaneously into the lower lid of one of the animal's eyes. A positive reaction in a sick animal was manifested within 48 hours by pronounced edema at the injection site, readily evaluated by inspection or palpation.

1/1

USSR

UDC 621.313.322.013.8.001.24

BABKO, L. V., YURGANOV, A. A., YUREVICH, YE. I.

"Optimal Emergency Control of the Generating Units of Power Systems"

V sb. Vozbuzhdeniye, regulir. i ustoychivost' sinkhron. mashin (Excitation, Regulation and Stability of Synchronous Machines -- collection of works), Leningrad, Nauka Press, 1970, pp 42-50 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye207)

Translation: A study is made of optimal nonlinear control of the excitation of a turbogenerator as applied to the standard power system. The equations describing the motion of the object are reduced to a form which is convenient for application of the principle of the maximum. The combined criterion of optimality insuring maximum limits of dynamic stability is investigated, and a procedure is described for determining the control corresponding to this criterion. The study was performed on an analog computer, and the results were checked on an electrodynamic model. There are 3 illustrations and a 4-entry bibliography.

1/1

- 113 -

USSR

UDC 546.48'22 + 546.48'23

KALINKIN, I. P., MURAV'YEVA, K. K., YURSEL', I. B., ALESKOVSKIY, V. B.,
and ANIKIN, I. N., Leningrad Technological Institute imeni Lensovet

"Production of Single-Crystal CdS and CdSe Film Under Conditions
Close to Equilibrium"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy,
Vol 6, No 9, Sep 70, pp 1564-1567

Abstract: The article suggests a method for the synthesis of single-crystal CdS and CdSe films using vacuum condensation on orienting substrates (synthetic mica (fluorophlogopite) or leucosapphire) in a wide temperature range (300-800° C) under conditions close to thermodynamic equilibrium. The structure of epitaxial films of CdS and CdSe is no less perfect than single crystals (number of dislocations 10^{-3} - 10^{-5} cm⁻²). A study was made of the effect of process parameters on the degree of structure perfection of the CdS, CdSe epitaxial films and their electrical properties. The suggested method permits the growth of single-crystal CdS and CdSe films with a wide range of properties.

1/2

USSR

KALINKIN, I. P., et al., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 9, Sep 70, pp 1564-1567

Conditions are described for the production of single-crystal CdSe films with a mobility of up to $180 \text{ cm}^2/\text{v. sec.}$ close to the properties of the single crystals. Perfect CdS and CdSe films with a resistivity of up to $10^7\text{-}10^9$ ohms per sec were synthesized. The method of coevaporation with chalcogene gives perfect high-resistance single-crystal CdS and CdSe films with a hole mobility of $0.8\text{-}2.4 \text{ cm}^2/\text{v. sec.}$

2/2

- 50 -

USSR

UDC 575.111.23:582.998.4

DUBININ, N. P., NEMTSEVA, L. S., and YURCELAYTSE, K.-N. V., Institute of General Genetics, Academy of Sciences USSR, Moscow

"Frequency of Vested Ring Chromosomes in Relation to Irradiation Dose"

Moscow, Genetika, No 6, 1971, pp 5-10

Abstract: Water-soaked *Crepis capillaris* seeds were exposed to Cs^{137} gamma rays at 1 and 2 kr. Irradiation produced structural mutations only of the chromosome type. Among the chromosomal aberrations were rings whose number, like the frequency of the chromosomal aberrations as a whole, was dose-dependent. Doubling the dose tripled the number. The ring chromosomes included some of the vested type. The number of the latter was also dose-dependent. At 1 kr, only one case of vesting was detected among 5,500 cells studied, whereas 20 were found among 3,000 cells after irradiation at 2 kr. Thus, doubling the dose increased the frequency of vesting about 30-fold. Vesting occurred at the time the ring chromosomes were formed. Whether the ring was free or vested on a rod-shaped chromosome depended on whether the middle fragment was enclosed without a rod-shaped fragment or included within the ring formed.

1/1

- 20 -

USSR

UDC 612.453.014.3:6-612.6-06:612.766.2

YURGENS, I. L. and KIRILLOV, O. I., Laboratory of Pharmacology and Experimental Therapy, Institute of Biologically Active Substances, Far Eastern Scientific Center of the Academy of Sciences USSR

"Mitotic Activity of the Rat Adrenal Cortex During Prolonged Hypokinesia"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 74, No 7, 1972, pp 98-101

Abstract: The effect on mitotic activity of prolonged restraint was studied by placing male rats of the Wistar strain weighing 95-100 g into small cubicles. Groups of experimental and control animals were sacrificed after 1 hr, 12 hr and after 2, 5, 9, 14 or 19 days. It was found that mitotic activity was decreased after one hour of hypokinesia. Mitotic activity in the zona glomerulosa was restored to control levels and in the external zona fasciculata greatly exceeded control activity after 12 hours to 9 days of hypokinesia. After 14 to 19 days, when the animals showed signs of exhaustion, the amount of hypertrophy had decreased and the mitotic index decreased. The results obtained here and in an earlier work of the authors suggest that hypertrophy of the adrenal cortex during stress involves increased mitotic activity as well as hypertrophy of individual cells.

1/1

- 58 -

Acc. Nr:

AP0051927

Ref. Code: UR0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i
Meditsiny, 1970, Vol 69, Nr 2, pp 166-162.

MITOTIC ACTIVITY OF THE ADRENAL CORTEX CELLS IN RATS SUBJECTED
TO PROLONGED EXERCISE

L. L. Yurgens, O. I. Kirillov

Institute of Biologically Active Substances of the Siberian Branch of the Academy of
Sciences of the USSR, Vladivostok

Rats were forced to swim in a bath with water temperature of 28—30° 3 hours
a day for 30 consecutive days. Groups of animals were sacrificed after 2, 5, 6, 18, 24
and 30 swims. The mitotic activity of the fascicular and retinal zones of the adrenals
declined by the 5th day, then rose above the ordinary level (on the 12, 18 and 24th day)
and, finally, decreased again on the 30th day. In the glomerular zone an increase in the
number of mitotic cells was observed only on the 18th day, being down throughout
the rest of the time, except for the 2nd day. Hence, changes in the mitotic activity
of the adrenal glands in rats subjected to protracted swimming were of phasic nature.

REEL/FRA

19820410

2 Sc

Ecology

USSR

UDC 591.5

YURGENSON, P. B.

"Theory of Distribution, Spatial Analysis, and Applied Ecology of Animals"

Moscow, Byulleten' Moskovskogo Obshchestva Ispytateley Prirody, No 6, 1970,
pp 5-16

Abstract: Applied ecology still makes little use of spatial analysis, with emphasis chiefly on environmental factors lacking in spatial parameters. Such general concepts about the habitat as type of forest and population density are widely employed, while the actual distribution of animals and underlying factors are ignored. That is to say, typological thinking is characteristic of applied ecology. Citing several practical problems such as the feeding of animals when their natural food supply is meager or inaccessible because of snow, the author shows how the theory of distribution and spatial analysis help to produce sound solutions and prevent costly errors and miscalculations. The article concludes with a discussion of radiotelemetry and other techniques of tracking wild animals.

1/1

USSR

UDC 518:517.91/.94

YURGENSON, R., and IOKK, Kh.

"Solving Boundary Value Problems of a Second-Order System of Differential Equations by the Finite-Difference Method"

Uch. zap. Tartus. un-ta (Scientific Notes of Tartu University), No 253, 1970, pp 276-286 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B936, by I. Shelikhova)

Translation: Using the finite-difference method, the authors solve boundary value problems for systems of linear and nonlinear, ordinary second-order differential equations for two types of approximation of boundary conditions. A priori evaluations of the solutions of linear systems are made. In the nonlinear case two methods of approximating the initial system are considered. Iterative processes are formulated for solving nonlinear difference systems, and the conditions for their convergence are proven. The rate of convergence of solutions of difference boundary value problems to the solution of the initial nonlinear boundary value problem is investigated, and evaluations are made for the errors under the finite-difference method.

1/1

- 7 -

USSR

YURGENSON, R. I.

"Noiseproof Digital Systems for Transmission of Telemechanical Information"

Leningrad, Pomekhoystoychivosty Tsifrovyykh Sistem Peredachy Telemekhanicheskoy Informatsii [English version above], 1971, 250 pp.

Translation: This book studies the structural forms of coding and decoding devices using redundant codes with various bases and methods of obtaining noiseproof digital systems for transmission of telemechanical information, operating under the influence of random noise of various intensities.

The monograph is designed for scientific and engineering workers in the area of the study and planning of large information and telemechanical systems. It may also be useful to senior students in universities specializing in the digital transmission of telemechanical information.

Table of Contents

Foreword

Chapter One. Basic Concepts and Definitions

3
6

1/2

* USSR

YURGENSON, R. I., Pomekhozstoychivosty Tsifrovyykh Sistem Peredachy
Telemechanicheskoy Informatsii, 1971, 250 pp.

Chapter Two. General Considerations on Evaluation and Provision of Noiseproof Digital Systems for Transmission of Telemechanical Information	
Chapter Three. Structural Forms of Coding and Decoding Devices with Multicycle Formation and Determination of Code Elements	47
Chapter Four. Structural Forms of Coding and Decoding Devices with Single-Cycle Formation and Determination of Code Elements	117
Chapter Five. Methods of Providing Noiseproof Digital Systems for Transmission of Telemechanical Information, Designed for Operations with Random Pulse Noise of Low Intensity	136
Chapter Six. Methods of Providing Noiseproof Digital Systems for Transmission of Telemechanical Information, Designed for Operations with Random Pulse Noise of Moderate Intensity	143
Chapter Seven. Methods of Providing Noiseproof Digital Systems for Transmission of Telemechanical Information, Designed for Operations with Random Pulse Noise of High Intensity	175
	214

2/2

- 43 -

1/2 028 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ON THE THEORY OF ELECTROMAGNETIC WAVE PROPAGATION IN A GYROMAGNETIC
MEDIUM -U-
AUTHOR--(02)-POTEKHIN, A.I., YURGENSON, R.R.
COUNTRY OF INFO--USSR
SOURCE--RADIOOTEKHNIKA I ELEKTRONIKA (RADIO AND ELECTRONICS), 1970, NO 2,
PP 307-315
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTROMAGNETIC WAVE PROPAGATION, ANTENNA AZIMUTH COVERAGE,
MAGNETIC FIELD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1862 STEP NO--08/0109/70/000/002/0307/0315
CIRC ACCESSION NO--AP0130689
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0130639

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE PROPAGATION OF ELECTROMAGNETIC WAVES IN AN INFINITE AZIMUTHALLY MAGNETIZED MEDIUM IS INVESTIGATED. THE SOLUTION OF THIS PROBLEM IS OBTAINED BY INTEGRATION OF THE FOURTH ORDER EQUATIONS FOR THE FIELD VECTORS IN THE FORM OF NEW SPECIAL FUNCTIONS. THE ASYMPTOTIC EXPANSION OF THE SOLUTIONS AND THE APPROXIMATE SOLUTION FOR THE FIELD VECTORS ARE GIVEN IN THE FORM OF DEGENERATE HYPERGEOMETRIC FUNCTIONS.

UNCLASSIFIED

USSR

UDC 629.195.3/5+621.386.86

KUZIN, R. A., and YURGOV, V. V.

Radiatsionnyy Bar'yer na Puti v Kosmos (The Radiation Barrier on the Path Into Space), Moscow, "Atomizdat," 1971, 136 pp

Translation: Annotation: In this book, the problem of radiation safety during spaceflight is discussed in an interesting and understandable form.

The book acquaints readers with modern ideas on the nature of space radiation and its effect on living organisms under spaceflight conditions. A great deal of attention is given to questions of protecting the cosmonaut against the harmful action of space radiation.

In this book the reader will find information on the history of the conquest of space, on prospects for mastering the universe, and on ways of overcoming the difficulties involved with space radiation.

A special section of the book is devoted to the question of modeling the radiation effects of space radiation under earth conditions using charged particle accelerators and isotope devices.

1/2

- 104 -

USSR

KUZIN, R. A., and YURGOV, V. V., Radiatsionnyy Bar'yer na Puti v Kosmos (The Radiation Barrier on the Path Into Space), Moscow, "Atomizdat," 1971, 136 pp

The book has many diagrams and pictures which make it easier to grasp the material.

Table of Contents:

Chapter One. Man and the Universe	Page
Chapter Two. The Radiation Barrier. What Is It?	3
2.1 Breathing of a Galaxy	24
2.2 The Sun -- Friend or Enemy?	24
2.3 An Unexpected Obstacle	36
Chapter Three. Modeling -- the Way to Success	50
3.1 Space Conditions on Earth	69
3.2 Radiobiologists Take the Lead	69
Chapter Four. The Barrier Will be Overcome	87
4.1 Passive Defense Does Not "Pass"	98
4.2 Charge Versus Charge	98
4.3 Chemistry is Here Too	115
Bibliography	122
	134

2/2

YURGOV, V.V.

SO: JPRS 53448
24 JUNE 71

UDC 612.014.182.001.57:629.78

Article by V. I. Porev, A. V. Shalagin and V. V. Yurgov, *Kosmicheskaya Biologiya i Meditsina*, Russian, Vol 5, No 2, 1971, pp 46-50, submitted for publication 9 March 1970

Radiation exposure is characterized by the following parameters: magnitude of the absorbed dose, temporal dose distribution, dose depth distribution, and spectrum of linear energy losses (LEL) in the irradiated object. In a prolonged experiment with the participation of a large number of laboratory animals the direct modeling of radiation exposure from galactic cosmic radiation (GCR) and solar flare radiation is impossible when using charged-particle accelerators. However, the dose loads and temporal dose distribution can be simulated in a broad range by using γ -radiation sources. It is most convenient to use the γ -radiation of a ^{60}Co source having a LEL spectrum for which the general biological effect (GNE) is close to 1. In addition, the dose depth distribution in the animal body from ^{60}Co γ -radiation is close to the GCR dose depth distribution and the depth distribution is close of hard solar flares (such as the flare of 23 February 1956).

The conditions for animal irradiation in a chronic experiment (Yu. G. Orlovskiy, et al.) were determined taking into account the following requirements. The simultaneous chronic irradiation of a large group of animals must continue without interruption for several years under conditions ensuring their normal vital functions. Victims of the animals should be simple and convenient as that the time when irradiation is suspended is reduced to a minimum. Curable and acute irradiation of the animals must conform to the current standards of radiation safety for servicing personnel and the surrounding population. Uniformity in the dose field in the apparatus for chronic and acute irradiation of the animals must not be greater than ± 10 percent.

Satisfaction of these requirements required creation of a special cage and the "Iyustap" apparatus for chronic and "Kobalt" apparatus for acute irradiation of the animals. The principal components of the "Iyustap" apparatus are a lead container-coil containing a ^{60}Co γ -radiation source, a rigid beam 2.5 m high, and a mechanism for changing the suspension height

66

Radiation medicine

USSR

UDC: 8.74

MALYSHEVA, I. I., SYPCHUK, P. P., YURIN, O. N.

"A General Algorithm for Solving the Problem of Laying out Printed Circuit Connections"

Moscow, Kibernetich. sistemy avtomatiz. proyektir.---sbornik (Cybernetic Automated Design Systems--collection of works), 1973, pp 74-80 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V596 by O. Belkin)

Translation: In known papers dealing with development of algorithms for laying out printed circuit connections, primary attention is given to overcoming design and technological limitations which differ for each type of board manufacturing technique. Development of a universal method of solving the layout problem which is suitable for any practically realizable technique is possible only on the basis of creating a generalized circuit board model. The paper gives a formalized description of a generalized printed circuit board. A general algorithm for laying out printed circuit connections is proposed. Based on the proposed algorithm, a program was developed for automatic layout of printed circuit connections with regard to hardware limitations. The program is written for the digital computer System 4/50 and contains 15,000 commands.

1/1

Instruments and Measurements

USSR

UDC: 621.37/39(075)

KVASNITSKIY, V. N., LEVINTOV, A. G., YURIN, O. N.

"Electric Circuits in Radio Electronics and Instrument Building"

Elektricheskiye skhemy v radioelektronike i priborostroyenii (cf. English above), Moscow, "Svyaz", 1971, 191 pp, ill. 77 k. (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A13 K)

Translation: All types of circuits which incorporate a unified system of design documentation are considered in the book. Recommendations are introduced on compiling circuit documentation for various groups of articles. A method is described for automatic circuit design by computer. The book is written for engineering and technical workers dealing with problems of creating and checking out circuit documentation, and may be useful for college and university students. A. K.

1/1

USSR

BELYAYEV, V. F., YURIN, O. P.

"Algorithm for Translation of Descriptions of Digital Devices Corresponding to Various Levels of Planning"

Kibernetich. Sistemy Avtomatiz. Proyektir. [Cybernetic Systems for Automation of Planning -- Collection of Works], Moscow, 1973, pp 127-131 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V603, by A. Muchnik).

Translation: A problem of modeling of digital devices by computer with subdivision of the model into submodels so that the description of each submodel is placed in main memory is studied. With this approach, the modeling time can be reduced. The principles of subdivision of models into hierarchical levels are discussed. Modeling is illustrated with an example.

1/1

USSR

UDC 620.179.16

BARYSHEV, S. Ye. and YURIN, V. N.

"Measurement of the Main Parameters and the Adjustment of Locating Heads on the Basis of the Spectral Composition of an Echo Signal"

Sverdlovsk, Defektoskopiya, No 2, 1972, pp 90-99

Abstract: The influence of an electrical load and an acoustic load upon the spectra of echo signals is investigated. The procedure and the equipment are proposed for measuring the basic electromechanical characteristics of a locating head, namely the frequency of the conversion maximum and the quality factor, and for adjustment of the locating head in accordance with the echo-signal spectrum. A special pulse meter was devised which measures frequency characteristics. This meter has a radio-pulse selector which permits the transceiving amplitude-frequency characteristics of combined locating heads to be observed on the screen of an electron-beam tube. Such instruments are nonstandard, and are not being produced in series either in the USA or in the USSR. 6 figures. 1 table.

1/1

Acc. Nr.: AP0029427

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp21-24

MOLECULAR WEIGHT AND THE NUMBER OF IONOGENIC GROUPS OF
RISTOMYCINS AND CLOSE ANTIBIOTICS

Lomakina, N.N.; Murav'yeva, L.I.; Yurina, M.S.

Institute for New Antibiotics, Academy of Medical Sciences of the USSR, Moscow

Potentiometric titration of ristomycins, i. e. ristomycins A and B, ristocetins A and B, actinoidins A and B and vancomycin was performed. It was determined that the molecular weight of ristomycin A and ristocetin A was about 2300, that of ristomycin B, ristocetin B and actinoidins 2000-2100 and that of vancomycin 1600-1700. The ristocetins were found to contain just as ristomycins two primary amino groups. Five titrating phenolic hydroxyls were shown to be present in both ristocetins and ristomycins. Actinoidins and vancomycin contained 4 and 3 phenolic hydroxyls respectively. One of the two amino groups present in vancomycin was primary.

REEL/FAME

19681023

1/3 007 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COMPONENTS OF ESSENTIAL OILS. XLVI. SYNTHESIS OF ANALOGS OF AUXINS
BASED ON COMPHOR -U-
AUTHOR-(03)-YURINA, R.A., DEMBITSKIY, A.D., GORYAYEV, M.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(1), 86-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HYDROXY CARBOXYLIC ACID, WOOD CHEMICAL PRODUCT, ORGANIC
NITRILE COMPOUND, ESTER, VEGETABLE OIL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1993/0698 STEP NO--UR/0360/70/020/001/0086/0089
CIRC ACCESSION NO--AP0113564
UNCLASSIFIED

2/3 007

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0113564

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ANALOGS OF AUXINS (KETO AND HYDROXY ACIDS CONTG. THE 1,1,2,TRIMETHYL,2,CYCLOPENTENYL GROUP) WERE PREPD. FROM CAMPHOR (I). THUS TO 300 G AQ. HI (D. 1.7) 300 G I OXIME WAS ADDED TO GIVE 70PERCENT BETA CAMPHOLENONITRILE (II), M. 225DEGREES. ONE PART II AND ONE PART 50PERCENT ALC. KOH GAVE A PRODUCT WHICH UPON SATN. WITH NH SUB3 PPTD. BETA COMPHOLENIC ACID NH SUB4 SALT, M. 125-60DEGREES (ISOPROH), FROM WHICH FREE ACID (III), M. 52-3DEGREES, B SUB20 185DEGREES, N PRIME20 SUBD 1.4756; (AMIDE M. 85.5-86DEGREES) WAS OBTAINED. TO 50 G III AND 60 ML ET SUB2 O, 60 ML SOCL SUB2 WAS ADDED TO GIVE 49 G BETA CAMPHOLENOYL CHLORIDE (IV), (B SUB10 86-70DEGREES, N PRIME20 SUBD 1.4712). THE CONDENSATION OF 49 G IV WITH 50 G 1,MORPHOLIN,1,CYCLOPENTENE AND 42 ML ET SUB3 N IN 300 ML CHCL SUB3 GAVE 46 G 3,11,1,2,TRIMETHYL,2,CYCLOPENTENYL,6,OXOENANTHIC ACID (V), B SUB2 183-5DEGREES, N PRIME20 SUBD 1.4885; ME ESTER B SUB2 153-5DEGREES, N PRIME20 SUBD 1.4800, D PRIME20 SUB20 1.0011. THE CONDENSATION OF 98 G IV WITH 98 G 1,MORPHOLIN,1,CYCLOHEXENE GAVE 90 G 3,11,1,2,TRIMETHYL,2,CYCLOPENTENYL,7,OXOCAPRYLIC ACID (VI), B SUB2 189-91DEGREES, N PRIME20 SUBD 1.4960; ME ESTER B SUB2 159-61DEGREES, N PRIME20 SUBD 1.4860, D PRIME20 SUB20 0.9952.

UNCLASSIFIED

3/3 007

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0113564

ABSTRACT/EXTRACT--THE REDN. OF 106 G V OR 100 G VI WITH AL ISOPROPOXIDE
GAVE, RESP., 85 G 3, (1,1,2,TRIMETHYL,2,CYCLOPENTENYL),6, HYDROXYENANTHIC
ACID, B SUB2 202-4DEGREES, N PRIME20 SUBD 1.4970 (ME ESTER B SUB2
170-2DEGREES, N PRIME20 SUBD 1.4810, D PRIME20 SUB20 1.0001), AND 84 G
3, (1,1,2,TRIMETHYL,2,CYCLOPENTENYL),7, HYDROXYCAPRYLIC ACID, B SUB2
199-202DEGREES, N PRIME20 SUBD 1.4930; ME ESTER 173-5DEGREES, N PRIME20
SUBD 1.4815, D PRIME20 SUB20 0.9931.
NAUK, ALMA-ATA, USSR.

FACILITY: INST. KHIM.

UNCLASSIFIED

Plant Pathology

USSR

UDC 632.4:633.11+633.16

RUBIN, B. A., and YURINA, YE. V., Moscow State University

"Changes in the Enzyme System of Puccinia graminis Under the Influence of the Plant Host"

Moscow, Doklady Vsesoyuznoy Orden a Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenin, No 4, 1971, pp 2-5

Abstract: The purpose of the work was to study changes in the catalytic properties of peroxidase in the uredospores of Puccinia graminis grown on five wheat varieties and one barley, all susceptible to stem rust. The plants were inoculated with uredospores of the 15th race. The uredospores were collected 9 to 10 days after inoculation and then analyzed by electrophoresis in polyacrylamide gel. Electrophoregrams of total protein in the cytoplasm of all plant varieties were the same, with each containing 15 components and distributed in a similar fashion. The largest set of isoenzymes of peroxidase was found in the uredospores grown on the FPG-186 wheat variety, which displayed four broad bands of isoenzymes. When the fungus was transferred from FPG-186 to the other wheat and barley varieties, there was a substantial reconstruction of the isoenzyme composition of peroxidase.

1/1

USSR

UDC: 536.46:533.6

OZEROV, E.S. and YURINOV, A.A.

"Vapor-Phase Combustion of Metal Particle in Presence of Hydrogen"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972 (11-th All-Union Conference on Problems of Evaporation, Combustion and Gas Dynamics of Dispersion Systems, 1972), 1972, pp 28-29 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B963)

Translation: It is established by experiment that in the presence of free hydrogen the speed of combustion increases with its concentration. This fact cannot be explained without taking into account the effect of hydrogen on the heat transfer coefficients. The calculation method assumes that the metal vapors burn-out completely on the spherical surface and that the metal vapor and steam contents there are null. The oxide formed by combustion is either completely condensed and remains on the surface of combustion or is not condensed at all, but in either case the latent heat of condensation is emitted during the oxidation reaction. The mass transfer equation contains the mutual diffusion coefficients of all possible pairs of components, and it turns out that the total flow is appreciably affected by the hydrogen content.

1/2

USSR

OZEROV, E. S. and YURINOV, A. A., 11-ya Vses. Konf. po Vopr. Ispareniya, Gorennya i Gaz. Dinamiki Dispersn. Sistem, 1972

The design relations between the combustion time and contents of hydrogen and steam agree qualitatively and are close quantitatively with the experimental results for magnesium particles burning in the mixture of steam with nitrogen and hydrogen. These results form the basis for discussion of the possibility of improving the accuracy of the calculation methods.

2/2

- 39 -

USSR

UDC 536.46:533.6

YEZHOVSKIY, G. K., MOCHALOVA, A. S., OZEROV, Ye. S., YURINOV, A. A.

"Ignition and Combustion of Magnesium Particles"

V sb. Gorenivye i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 234-240 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B939)

Translation: The results and methods of an experimental study of the characteristics of ignition and combustion of single suspended and flying particles of magnesium are presented. The kinetic constants of the heterogeneous oxidation reaction of magnesium in an aqueous vapor and in oxygen are calculated on the basis of the experimental data. The limiting combustion temperature and the induction time of a magnesium particle is calculated as a function of the various parameters of the medium with the aid of the constants obtained. A semiempirical formula is given for the constant of the rate of combustion of the magnesium particle as a function of the concentration of oxidizer in the medium and the pressure of the medium. 5 ref. Authors' abstract.

1/1

USSR

UDC 629.7.036.54:536.46

OZEROV, YE. S. and YURINOV, A. A.

"The Vapor-Phase Combustion of a Metal Particle in the Presence of Hydrogen"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz, Dinamiki Dispersn. Sistem; 1972 -- Sbornik (11-th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972 -- Collection of Works), 1972, pp 28-29 (from Referativnyy Zhurnal -- Aviatsionnyye i Raketnyye Dvigateli, No .. 1973, Abstract No 1.34.147 Resume)

Translation: It is experimentally established that in the presence of free hydrogen, the combustion rate increases with an increase of its content. This fact cannot be explained without taking into account the influence of hydrogen upon the coefficient of heat and component transfer. In the calculation scheme it is assumed that the metal vapors burn up completely on a spherical mathematical surface, and that the content of metal vapor and water vapor is here equal to zero. The formed oxide either condenses completely and remains on the combustion surface (variant I), or does not condense at all, but the heat of formation of the condensed oxide is released during the oxidation reaction (variant II). The calculation relationships of the combustion time to the content of hydrogen

1/2

USSR

OZEROV, YE. S., and YURINOV, A. A., 11-th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972 -- Collection of Works, 1972, pp 28-29

and water vapor are in qualitative agreement, and are quantitatively close to the experimental results for magnesium particles burning in a mixture of water vapor with nitrogen and hydrogen. The possibilities of refining the calculation scheme are discussed on the basis of comparison of the results.

2/2

- 18 -

USSR

UDC: 621.319.4

BUTS, V. P., ZHELEZNOV, M. T., YURINOV, M. M.

"Vacuum Capacitors"

Vakuumnyye kondensatory (cf. English above), Leningrad, "Energiya", 1971, 134 pp, ill. 55 k. (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V377K)

Translation: The use of vacuum as a dielectric makes it possible to produce capacitors which have a better combination of electrical and operational characteristics than air, gas-filled, mica or ceramic capacitors in a certain region of working frequencies with lower weight and overall dimensions. This book systematizes available information on vacuum capacitors. Ye. M.

1/1

- 65 -

USSR

UDC 621.4/.6:533.6

YURINSKIY, V. T., YEFIMOV, N. N.

"The Working Process of an Active Mechanical Nozzle"

Tr. Novocherkas. politekhn. in-ta (Works of Novocherkassk Polytechnical Institute), 1972, Vol. 258, pp 49-56 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B435)

Translation: The process of the acceleration of a gas flow in an axial turbine is considered when the mechanical work supplied to the shaft of the turbine is used to raise the kinetic energy of the directed motion of the gas with the conservation of the unchanged specific potential energy (the energy of molecular motion) from the input to the output of the cross section of the machine. The essential shape of the through-flow section and the skeletal shapes of blades of the working and rectifying grids of such a flow stimulator are shown. By considering the flow stimulator as an equivalent acceleration nozzle and using the methods of flow theory, the authors calculate the parameters of the flow accelerated in the channels of the turbine and determine the efficiency of the flow stimulator. L. V. Nosachev.

1/1

- 110 -